Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A method of manufacturing a silica glass member, comprising:

a first step of making a silicon compound react in oxyhydrogen flame using a burner having a multi-tubular structure to obtain fine silica glass particles;

a second step of depositing the fine silica glass particles on a support rotating and placed to oppose the burner to obtain a silica glass ingot with a temperature distribution in at least one plane perpendicular to a rotational axis of the silica glass ingot, the temperature distribution being symmetrical with respect to the rotational axis and having a maximal value between a center and a peripheral portion of the plane; and

a third step of obtaining a distribution of signed birefringence values on the basis of birefringence values and directions of phase advance axes measured at a plurality of points in the plane perpendicular to the rotational axis of the silica glass ingot and cutting, from the silica glass ingot, a silica glass member whose signed birefringence values monotonously increase from the center to the peripheral portion of the plane.

2. (Original) A manufacturing method according to claim 1, wherein in the second step, a difference between the maximal value and a temperature at the center of the plane exceeds 0℃ and is not more than 200℃.

3. (Currently Amended) A method of manufacturing a silica glass member, comprising:

a ~~fourth~~ step of heating a silica glass ingot to a predetermined temperature;

a ~~fifth~~ step of cooling the silica glass ingot with a temperature distribution in at least one plane perpendicular to a rotational axis of the silica glass ingot, the temperature

distribution being symmetrical with respect to the rotational axis and having a maximal value between a center and a peripheral portion of the plane; and

a ~~sixth~~ step of obtaining a distribution of signed birefringence values on the basis of birefringence values and directions of phase advance axes measured at a plurality of points in the plane perpendicular to the rotational axis of the silica glass ingot and cutting, from the silica glass ingot, a silica glass member whose signed birefringence values monotonously increase from the center to the peripheral portion of the plane.

4. (Currently Amended) A manufacturing method according to claim 3, wherein in the ~~fifth step,~~step of cooling, a difference between the maximal value and a temperature at the center of the plane is 20℃ to 300℃.

5. (Currently Amended) A silica glass member having a distribution of signed birefringence values which monotonously increase from a center to a peripheral portion of ~~the~~ a plane of the glass member, said silica glass member being obtained by a manufacturing method comprising:

a first step of making a silicon compound react in oxyhydrogen flame using a burner having a multi-tubular structure to obtain fine silica glass particles;

a second step of depositing the fine silica glass particles on a support rotating and placed to oppose the burner to obtain a silica glass ingot with a temperature distribution in at least one plane perpendicular to a rotational axis of the silica glass ingot, the temperature distribution being symmetrical with respect to the rotational axis and having a maximal value between the center and the peripheral portion of the plane; and

a third step of obtaining a distribution of signed birefringence values on the basis of birefringence values and directions of phase advance axes measured at a plurality of points in the plane perpendicular to the rotational axis of the silica glass ingot and cutting, from the silica glass ingot, a silica glass member whose signed birefringence values monotonously

increase from the center to the peripheral portion of the ~~plane.~~plane of the glass member, and a maximum value of a gradient of a radial distribution curve of average signed birefringence values is 0.2 nm/cm or less for a radial width of 10 mm.

6. (Original) A silica glass member according to claim 5, wherein in the second step, a difference between the maximal value and a temperature at the center of the plane exceeds 0℃ and is not more than 200℃.

7. (Currently Amended) A silica glass member having a distribution of signed birefringence values, in which the signed birefringence values monotonously increase from a center to a peripheral portion of ~~the~~ a plane of the glass member, said silica glass member being obtained by a manufacturing method comprising:

a ~~fourth~~ step of heating a silica glass ingot to a predetermined temperature;

a ~~fifth~~ step of cooling the silica glass ingot with a temperature distribution in at least one plane perpendicular to a rotational axis of the silica glass ingot, the temperature distribution being rotationally symmetrical with respect to the center of the plane and having a maximal value between the center and the peripheral portion of the plane; and

a ~~sixth~~ step of obtaining a distribution of signed birefringence values on the basis of birefringence values and directions of phase advance axes measured at a plurality of points in the plane perpendicular to the rotational axis of the silica glass ingot and cutting, from the silica glass ingot, a silica glass member whose signed birefringence values monotonously increase from the center to the peripheral portion of the ~~plane.~~plane of the glass member and a maximum value of a gradient of a radial distribution curve of average signed birefringence values is 0.2 nm/cm or less for a radial width of 10 mm.

8. (Currently Amended) A silica glass member according to claim 7, wherein in the ~~fifth step,~~step of cooling, a difference between the maximal value and a temperature at the center of the plane is 20℃ to 300℃.